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**Proton Exchange Membrane Fuel Cell—Part 2: General
Technical Specification of Fuel Cell Stacks**
质子交换膜燃料电池
第 2 部分：电池堆通用技术条件

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CONTENTS

Foreword	II
Introduction.....	IV
1 Scope.....	1
2 Normative References	1
3 Terms and Definitions.....	1
4 Requirements.....	2
4.1 General Safety Measures.....	2
4.2 Design Requirements	2
4.3 Technical Requirements.....	4
4.4 Instrumentation and Accuracy Requirements	5
5 Test Methods	6
5.1 General.....	6
5.2 Visual Inspection.....	7
5.3 Safety Test	7
5.4 Gas Leakage Test.....	8
5.5 Internal Gas Leakage Test.....	9
5.6 Allowable Working Pressure Test.....	10
5.7 Pressure Withstanding Test of Cooling System.....	11
5.8 Differential Pressure Test.....	12
5.9 Insulation Test.....	12
5.10 Normal Operation Test	12
5.11 Rated Power Test	13
5.12 Electrical Overload Test	13
5.13 Flammable Gas Concentration Test	14
5.14 Environmental Adaptability Test	14
5.15 Specific Power of Fuel Cell Stack.....	16
5.16 Volumetric Power Density of Fuel Cell Stack Core.....	17
6 Markings and Instructions	18
6.1 General.....	18
6.2 Nameplate	18
6.3 Marking for Connections	18
6.4 Warning Mark.....	18
6.5 Technical Documentation Provided to the User.....	18
Annex A (Informative) Reference Information on Fuel Cell Stack Test Sample Parameters.....	21
Annex B (Informative) Fuel Cell Stack Test Result Record Form.....	22
Annex C (Informative) Electrical Efficiency of Fuel Cell Stack	23
Bibliography	24

Proton Exchange Membrane Fuel Cell—Part 2: General Technical Specification of Fuel Cell Stacks

1 SCOPE

This document specifies the requirements for safety, basic performance, test items, test methods, and markings and instructions with respect to proton exchange membrane fuel cell stacks (including direct alcohol fuel cell stacks, hereinafter referred to as “fuel cell stacks”).

Note 1: The cell stack referred to in this document is also known as fuel cell stack.

Note 2: Alternatively, any other fuel cell stacks, which employ better materials or have new structures, and which can pass the tests specified in this document and meet the relevant requirements, may also be considered to comply with this document.

This document applies to the design and testing of proton exchange membrane fuel cell stacks (including direct alcohol fuel cell stacks).

This document deals with conditions that can yield hazards to persons and cause damage outside the fuel cell stacks only. Protection against damage to the fuel cell stack internals is not addressed in this document, provided it does not lead to hazards outside the fuel cell stacks.

This document does not cover the requirements for the storage and delivery devices of fuel and oxidant.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 2423.43	Environmental testing for electric and electronic products - Part 2: Test methods - Mounting of specimens for vibration, impact and similar dynamic tests
GB/T 2423.56	Environmental testing - Part 2: Test methods - Test Fh: Vibration, broadband random and guidance
GB/T 3512	Rubber, vulcanized or thermoplastic - Accelerated ageing and heat resistance tests - Air-oven method
GB/T 3836.1-2021	Explosive atmospheres - Part 11: Material characteristics for gas and vapor classification - Test methods and data
GB/T 4208	Degrees of protection provided by enclosure (IP code)
GB/T 5169.16-2017	Fire hazard testing for electric and electronic products - Part 16: Test flames - 50W horizontal and vertical flame test methods
GB/T 5563	Rubber and plastics hoses and hose assemblies - Hydrostatic testing
GB/T 7826	Analysis techniques for system reliability - Procedure for failure mode and effects analysis (FMEA)
GB/T 15329	Rubber hoses and hose assemblies - Textile-reinforced hydraulic types for oil-based or water-based fluids - Specification
GB/T 20042.1	Proton Exchange Membrane Fuel Cell - Part 1: Terminology
GB/T 28816	Fuel cell-Terminology
IEC 61508 (all parts)	Functional safety of electrical/electronic/programmable electronic safety - related systems

3 TERMS AND DEFINITIONS

For the purposes of this document, the terms and definitions given in GB/T 20042.1 and GB/T 28816 as well as the following apply.

3.1

fuel cell stack core

part between collector plates in the fuel cell stack, with polar plates, membrane electrode assemblies and other structural parts laminated in series



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